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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/506,547	09/03/2004	Susumu Kayama	Q68919	1319
23373 7590 12/18/2006 SUGHRUE MION, PLLC 2100 PENNSYLVANIA AVENUE, N.W. SUITE 800 WASHINGTON, DC 20037			EXAMINER VANOU, TIMOTHY C	
			ART UNIT	PAPER NUMBER
			1754	
SHORTENED STATUTORY PERIOD OF RESPONSE		MAIL DATE	DELIVERY MODE	
3 MONTHS		12/18/2006	PAPER	

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/506,547

Applicant(s)

KAYAMA ET AL.

Examiner

Timothy C. Vanoy

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 November 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 and 13-36 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 13 and 18-27 is/are allowed.
- 6) ☒ Claim(s) 1-11, 14-17 and 28-36 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 September 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

Priority

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-11, 14-17, 28-31, 33, 35 and 36 are again rejected under 35 U.S.C. 102(b) as being anticipated by U. S. Patent 5,698,177 to Pratsinis et al.

Col. 3 Ins. 35-60 in U. S. Patent 5,698,177 describes a method for making titanium dioxide by:

mixing together titanium tetrachloride and oxygen gas in reaction area;
externally heating the mixture in the reaction area at a temperature that may range from 1100 to 1500 °K (i. e. 827 to 1227 °C) and for a residence time that may range from 0.075 to 0.1 seconds; please also see col. 7 Ins. 49-52; and
collecting the titanium dioxide.

Col. 3 Ins. 46-50 reports that the reaction may be conducted in the presence of an inert gas in the reaction area.

Col. 6 Ins. 63 et seq. reports that the reaction may be conducted in the presence of water vapor.

Col. 8 Ins. 1-4 reports that the procedure allows for the formation of titanium dioxide particles having a high surface area and a low rutile (high anatase) content.

Col. 9 In. 64 to col. 10 In. 6 reports that the titanium dioxide may be used as a photocatalyst, and col. 1 Ins. 31-33 reports that titanium dioxide is extensively used in semiconductors.

Claims 31-34 are rejected under 35 U.S.C. 102(b) as being anticipated by the applicants' admission set forth in the "Background" portion of their specification on pg. 1 In. 30 to 2 In. 8 in the applicants' specification.

The applicants already admit in the "Background" portion of their specification that particulate titanium oxide has been widely employed as an additive for silicone rubber; a dielectric raw material; a material for photocatalysts and also as a material for solar cells.

The limitations set forth in claims 31-34 drawn to the method by which the titanium dioxide was made are noted, but the claims are anticipated because the titanium dioxide appears to be the same as that described in the "Background" portion of the applicants' specification: please note the discussion of the *In re Fessman* 489 F.2d 742, 744 180 USPQ 324, 326 (CCPA 1974) court decision and the discussion of the *In re Marosi* 710 F.2d 798, 802, 218 USPQ 289, 292 (Fed. Cir. 1983) court decision set forth in section 2113 in the MPEP 8th Ed, Rev. 3, Aug. 2005.

Claims 18-27 have not been rejected under either 35USC102 or 35USC103 because neither U. S. Patent 2,240,343 or U. S. Patent 5,698,177 teach or suggest the dehalogenation of the titanium oxide product.

Response to Arguments

Applicant's arguments submitted with their Amendment filed on Nov. 21, 2006 have been fully considered but they are not persuasive.

a) *The applicants argue that that their claim 1 is limited to: (i) " $C \leq 650e0.02B$ " and (ii) reciting the amount of halogen that is transferred while their claim 35 relates to the relation that " $0 \leq Ci \leq 650ke0.02B$ wherein k is 0.20". The examiner has failed to establish that each and every element set forth in claims 1 and 35 is found, either expressly or inherently, in a single prior art reference as required for anticipation under 35USC102. Clearly, Pratsinis does not expressly disclose each and every element of claims 1 and 35. With respect to any alleged inherent description in Pratsinis, a basis in fact and/or technical reasoning is not identified in the Office Action.*

The chemical and physical characteristics of the composition are noted, but are submitted to inherently occur in the composition of U. S. Patent 5,698,177 to Pratsinis et al. because it is reasonably expected that the same process for making the same composition will inherently result in a composition having the same claimed chemical and physical properties - notwithstanding that these chemical and physical properties are not expressly identified in U. S. Patent 5,698,177. Since these chemical and

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physical properties are expected to inherently be present in what appears to be the same composition in U. S. Patent 5,698,177, then the rejection of the claims under 35USC102 is maintained.

b) *The applicants argue that Powders F1, F2 and F3 in Example 1 in Pratsinis have a rutile content that is greater than 5% and therefore do not satisfy the recitations of claims 1 or 35. Although Powder 4 of Example 1 of Pratsinis has a rutile content of less than 0.1, this powder fails to support an assertion that Pratsinis inherently discloses the presently claimed subject matter. In Pratsinis, the ratio of the flow of an inert gas to $TiCl_4$ is about 740 times, given that col. 10 ln. 32 states that the flow rate is 1.4×10^{-4} mol/min and Table 1 states that the air flow is 2.314 L/min. In the present application, the ratio of the flow of inert gas to $TiCl_4$ is preferably from 0.1 to 20 times, as described on pg. 21 lns. 12-23.*

Pratsinis broadly discloses that the $TiCl_4$ flow rate ranges from 100 to 300 cm^3/min in col. 4 ln. 66 to col. 5 ln. 3. The argument is in error because the applicants have used a molar flow rate of $TiCl_4$ that are in the dimensions of moles/min, whereas the argon flow rate is expressed in dimensions of cm^3/min . That is, in the applicants' calculations the dimensions of the argon flow rate and the $TiCl_4$ flow rate do not match. If the applicants want to compare the flow rates of their invention to flow rates of Pratsinis, then the applicants should have used the numerical flow rates for $TiCl_4$ reported in col. 4 ln. 66 to col. 5 ln. 3 in Pratsinis and also the argon flow rate of 200 cm^3/min set forth in col. 10 ln. 30 in Pratsinis which are reported in the same dimensions

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of cm^3/min . In so doing, one would find that the flow rate ratios for Pratsinis would fall between 0.5 and 1.5 times - well within the applicants' argued range of 0.1 to 20 times.

The applicants were comparing the flow rate of air to TiCl_4 in the Pratsinis patent and then erroneously compared it to the applicants' flow rate of inert gas to TiCl_4 .

c) *The applicants argue that Example 2 in Pratsinis does not contain sufficient information to enable one to determine whether the titanium dioxide satisfies the recitations of the present invention. With respect to Example 3 in Pratsinis, all of the powders have too high a rutile content and, thus, do not satisfy the present claims. Example 4 in Pratsinis does not set forth the rutile content and the temperature of the reaction.*

The disclosure of U. S. Patent 5,698,177 to Pratsinis is not limited to its Examples 2, 3 and 4.

d) *The applicants argue that even if one were to assume that the gases in Pratsinis would be preheated before they reach the flame, this does not mean that they would be preheated to a temperature of at least 600°C and less than 1100°C before being introduced into the reactor. The flame that Pratsinis uses is in the reactor, and there is no indication in Pratsinis that the gases would be preheated to the temperatures set forth in applicants' claim 13 before being introduced into the reactor.*

This argument has been found persuasive. The rejection of claim 13 over U. S. Patent 5,698,177 is dropped.

e) *The applicants argue that their claims 31-34 ultimately depend from claim 1 and require the recitations of claim 1 to be satisfied in order for the claims to be anticipated.*

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The present specification in the Background portion of the specification does not admit that the recitations of claim 1 are in the prior art.

The applicants' attention was directed to the discussion of the *In re Fessman* 489 F.2d 742, 744 180 USPQ 324, 326 (CCPA 1974) court decision and the discussion of the *In re Marosi* 710 F.2d 798, 802, 218 USPQ 289, 292 (Fed. Cir. 1983) court decision set forth in section 2113 in the MPEP 8th Ed, Rev. 3, Aug. 2005. The discussion of these court decisions set forth in section 2113 in the MPEP submits that the burden shifts to the applicants to come forward with evidence establishing an unobvious difference between the claimed product and the prior art product. The applicants have offered argument, but not any clear scientific reasoning or other evidence establishing that there is a difference between the composition of the prior art and the compositions of applicants' claim 1 - hence the rejection is maintained. The prior art compositions discussed in the applicants' Background portion of their specification include the anticipatory prior art composition of U. S. Patent 5,698,177 to Pratsinis.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

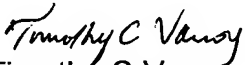
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extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Timothy C. Vanoy whose telephone number is 571-272-8158. The examiner can normally be reached on Mon-Fri 8-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman, can be reached on 571-272-1358. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


Timothy C Vanoy
Primary Examiner
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